

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An optical network which is formed by a plurality of optical network transmission apparatuses and a plurality of transmission lines that connect the optical network transmission apparatuses, characterized in that

each optical network transmission apparatus comprises

advertisement means for autonomously advertising ~~a usable wavelength~~ an addable wavelength and a droppable wavelength in a transmission line connected to the apparatus, and

collection means for autonomously collecting ~~a usable wavelength~~ an addable wavelength and a droppable wavelength in a transmission line that is advertised by another apparatus, wherein the plurality of optical network transmission apparatuses cooperate together to form a usable path determined from shared information that has been advertised and/or collected by the optical network transmission apparatuses of the network.

2. (Currently Amended) A network according to claim 1, wherein said advertisement means comprises notification means for notifying another apparatus adjacent to the apparatus of the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line connected to the apparatus and the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line that is collected by said collection means.

3. (Currently Amended) A network according to claim 1, wherein the optical network transmission apparatus further comprises route calculation means for calculating a route of an optical path on the basis of the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line connected to the apparatus and the ~~usable wavelength~~ addable

wavelength and the droppable wavelength in the transmission line that is collected by said collection means.

4. (Currently Amended) A network according to claim 1, wherein the optical network transmission apparatus comprises

wavelength management means for managing the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line connected to the apparatus, and

wavelength update means for updating the ~~usable wavelength~~ addable wavelength and the droppable wavelength managed by said ~~usable~~ wavelength management means when an optical path is set in the transmission line connected to the apparatus.

5. (Currently Amended) An optical network transmission apparatus in which the apparatus and other adjacent apparatuses are connected by transmission lines, characterized by comprising:

advertisement means for autonomously advertising ~~usable~~ addable and droppable wavelengths in the transmission lines connected to the apparatus; and

collection means for autonomously collecting ~~usable~~ addable and droppable wavelengths in transmission lines that are advertised by said other apparatuses, wherein the optical network transmission apparatus and the other adjacent apparatuses cooperate together to form a usable path determined from shared information that has been advertised and/or collected by the optical network transmission apparatus and other adjacent apparatuses of the network.

6. (Currently Amended) An apparatus according to claim 5, wherein said advertisement means comprises notification means for notifying said other apparatuses of the ~~usable~~ addable and droppable wavelengths in the transmission lines connected to the apparatus and the ~~usable~~ addable and droppable wavelengths in the transmission lines that are collected by said collection means.

7. (Currently Amended) An apparatus according to claim 5, further comprising route calculation means for calculating a route of an optical path on the basis of the ~~usable~~ addable and droppable wavelengths in the transmission lines connected to the apparatus and the ~~usable~~ addable and droppable wavelengths in the transmission lines that are collected by said collection means.

8. (Currently Amended) An apparatus according to claim [1] 5, further comprising:

wavelength management means for managing the ~~usable~~ addable and droppable wavelengths in the transmission lines connected to the apparatus; and

wavelength update means for updating the ~~usable~~ addable and droppable wavelengths managed by said ~~usable~~ wavelength management means when an optical path is set in the transmission lines connected to the apparatus.

9. (Currently Amended) A distributed routing control method in an optical network which is formed by a plurality of optical network transmission apparatuses and a plurality of transmission lines that connect the optical network transmission apparatuses, characterized by comprising the step of causing each optical network transmission apparatus to autonomously advertise a ~~usable wavelength~~ an addable wavelength and a droppable wavelength in a transmission line connected to the apparatus, and autonomously collect a ~~usable wavelength~~ an addable wavelength and a droppable wavelength in a transmission line that is advertised by another apparatus, wherein the plurality of optical network transmission apparatuses cooperate together to

form a usable path determined from shared information that has been advertised and/or collected by the optical network transmission apparatuses of the network.

10. (Currently Amended) A method according to claim 9, wherein the advertisement step comprises the step of notifying another apparatus adjacent to the apparatus of the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line connected to the apparatus and the collected ~~usable wavelength~~ addable wavelength and droppable wavelength in the transmission line.

11. (Currently Amended) A method according to claim 9, further comprising the step of calculating a route of an optical path on the basis of the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line connected to the apparatus and the collected ~~usable wavelength~~ addable wavelength and droppable wavelength in the transmission line.

12. (Currently Amended) A method according to claim 9, further comprising:

the step of setting an optical path along a route obtained by route calculation; and

the step of updating the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line connected to the apparatus.

13. (Currently Amended) A machine-readable recording medium which records a program of a distributed routing control method in an optical network which is formed by a plurality of optical network transmission apparatuses and a plurality of transmission lines that connect the optical network transmission apparatuses, characterized in that the program executes a process of

autonomously advertising ~~a usable wavelength~~ an addable wavelength and a droppable wavelength in a transmission line connected to each apparatus, and autonomously collecting ~~a usable wavelength~~ an addable wavelength and a droppable wavelength in a transmission line that is advertised by another apparatus, wherein the plurality of optical network transmission apparatuses cooperate together to form a usable path determined from shared information that has been advertised and/or collected by the optical network transmission apparatuses of the network.

14. (Currently Amended) A medium according to claim 13, wherein the program executes, as the advertisement process, a process of notifying another apparatus adjacent to the apparatus of the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line connected to the apparatus and the collected ~~usable wavelength~~ addable wavelength and droppable wavelength in the transmission line.

15. (Currently Amended) A medium according to claim 13, wherein the program further executes a process of calculating a route of an optical path on the basis of the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line connected to the apparatus and the collected ~~usable wavelength~~ addable wavelength and droppable wavelength in the transmission line.

16. (Currently Amended) A medium according to claim 13, wherein the program further executes

a process of setting an optical path along a route obtained by route calculation, and

a process of updating the ~~usable wavelength~~ addable wavelength and the droppable wavelength in the transmission line connected to the apparatus.

17. (New) An optical network according to claim 1, wherein

said advertisement means further advertises transmittable wavelengths, and said collection means further collects transmittable wavelengths that are advertised by other apparatuses.

18. (New) An optical network transmission apparatus according to claim 5, wherein

said advertisement means further advertises transmittable wavelengths, and said collection means further collects transmittable wavelengths that are advertised by other apparatuses.

19. (New) A method according to claim 9, wherein

said autonomously advertising step further advertises transmittable wavelengths, and said autonomously collecting step further collects transmittable wavelengths that are advertised by other apparatuses.

20. (New) A machine-readable recording medium according to claim 13, wherein

said autonomously advertising step further advertises transmittable wavelengths, and said autonomously collecting step further collects transmittable wavelengths that are advertised by other apparatuses.

21. (New) An optical network which is formed by a plurality of optical network transmission apparatuses and a plurality of transmission lines that connect the optical network transmission apparatuses, characterized in that

each optical network transmission apparatus comprises

advertisement means for autonomously advertising a usable wavelength in a transmission line connected to the apparatus, and

collection means for autonomously collecting a usable wavelength in a transmission line that is advertised by another apparatus, wherein the plurality of optical network transmission apparatuses cooperate together to form a usable path determined from shared information that has been advertised and collected by the optical network transmission apparatuses of the network, such that a source apparatus in the determined usable path knows, from the shared information it has collected, that the usable path will not fail due to apparatus limitations.

22. (New) An optical network transmission apparatus in which the apparatus and other adjacent apparatuses are connected by transmission lines in a network, characterized by comprising:

advertisement means for autonomously advertising usable wavelengths in the transmission lines connected to the apparatus; and

collection means for autonomously collecting usable wavelengths in transmission lines that are advertised by said other apparatuses, wherein the optical network transmission apparatus and the other adjacent apparatuses cooperate together to form a usable path determined from shared information that has been advertised and collected by the optical network transmission apparatus and other adjacent apparatuses of the network, such that a source apparatus in the determined usable path knows, from the shared information it has collected, that the usable path will not fail due to apparatus limitations.

23. (New) A distributed routing control method in an optical network which is formed by a plurality of optical network transmission apparatuses and a plurality of transmission lines that connect the optical network transmission apparatuses, characterized by comprising the step of causing each optical network transmission apparatus to autonomously advertise a usable wavelength

in a transmission line connected to the apparatus, and autonomously collect a usable wavelength in a transmission line that is advertised by another apparatus, wherein the plurality of optical network transmission apparatuses cooperate together to form a usable path determined from shared information that has been advertised and collected by the optical network transmission apparatuses of the network, such that a source apparatus in the determined usable path knows, from the shared information it has collected, that the usable path will not fail due to apparatus limitations.

24. (New) A machine-readable recording medium which records a program of a distributed routing control method in an optical network which is formed by a plurality of optical network transmission apparatuses and a plurality of transmission lines that connect the optical network transmission apparatuses, characterized in that the program executes a process of autonomously advertising a usable wavelength in a transmission line connected to each apparatus, and autonomously collecting a usable wavelength in a transmission line that is advertised by another apparatus, wherein the plurality of optical network transmission apparatuses cooperate together to form a usable path determined from shared information that has been advertised and collected by the optical network transmission apparatuses of the network, such that a source apparatus in the determined usable path knows, from the shared information it has collected, that the usable path will not fail due to apparatus limitations.